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ABSTRACT

Schools can achieve significant energy savings in a surprising number of ways. Some of these methods have to do with inspecting and upgrading facilities regularly, and some with setting and servicing equipment properly. But others depend on changing the wasteful habits that are the products of a time when both energy and money were more plentiful. Principals, therefore, must take the lead both by directing and participating in serious energy conservation strategies. (Author)

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THE PRINCIPAL AND ENERGY CONSERVATION

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The energy crisis in America is a reality. While we constitute only about six percent of the world's population, we manage to consume over thirty percent of the world's energy needs annually. Since the experts are now predicting that our natural gas reserves will cease to exist in ten to fifteen years, our oil supplies in twenty to thirty years, and that any significant use of solar, geothermal or fusion energy is at least twenty-five years away, if not longer, we are indeed faced with an "energy gap" both in our society and in our schools. In fact, there is a very real possibility that all our state and federal institutions may be required to replace gas-fired boilers in the future and natural gas will be restricted to domestic use only.

While such decisions are out of the hands of educators, conservation of energy is within their control and very definitely within their responsibility. This is particularly important, because schools are among the greatest "wasters" of energy in the nation today. Along with the inefficient utilization of our heating and cooling systems, as well as the many systems which are just plain inefficient themselves, we are confronted with giant heat and cooling losses through ill-fitting windows and doors, and poorly insulated walls and ceilings. And this is not to mention the generally carefree use of energy sources by students and staff alike. Vast amounts of fuel and electricity are squandered every year in the schools of our nation and strategies must be developed now to guarantee effective energy conservation at the local level in the future.

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Having stated the problem, let us now consider some solutions. To begin, principals must become more knowledgeable about their buildings than they have been in the past. For too long schools and their facilities have been taken for granted and their operation left almost entirely to the staff and non-professional personnel. In order to reverse this trend, it will be necessary for principals to become conversant with all of the physical aspects of their schools.

The Building

Frequent room-by-room inspections of the facilities (i.e., walls, windows, floors, ceilings, lighting, ventilators, thermostats, and machines and equipment) should become routine. Such in-depth inspections will identify the most flagrant energy-wasting conditions. And discovery of these problems should then result in prompt notification of the head custodian or building and grounds personnel at the Central Office. Except in unusual cases, corrective measures should be instituted immediately. A follow-up is appropriate. Along with these physical inspections, the principal should also obtain and review the "as-built" drawings of the school and become familiar with its various mechanical systems.

The Staff

In addition to checking the building for energy-wasting conditions, energy-wasting practices must also be investigated. These involve such things as open windows during significant heating or cooling cycles, tampering with thermostats, lighting in vacant rooms, equipment and machines left running, and inordinate use of water. A portion of the staff in-service program might well be devoted to these kinds of problems and frequent personal and published reminders would be advisable. Students should also be admonished regarding energy-wasting practices and the student council could be a useful vehicle for this activity.

The Future

Though drastic, consideration may have to be given eventually to re-scheduling the entire school year, and thus re-structuring courses and extra-curricular activities in a continuing effort to conserve vital energy. Contrary to the conventional wisdom of closing schools for extended winter vacations to save fuel, an impressive case has been made for conserving significant quantities of energy by closing schools earlier in spring. Because a virtually total shutdown of the physical plant is possible in May, vis-a-vis only a partial shutdown in December or January, considerable savings of both fuel and electricity can be insured. Given this fact, all school-related activities, including all evening events, would have to be re-structured to fit the new parameters. If serious attention is given to the problem of energy conservation today, perhaps these measures will never need to be implemented.

The Present

For the present, building principals must take all necessary steps to guarantee that their schools are functioning at maximum energy efficiency. The following activities, therefore, should be considered mandatory:

1. Determine both the effectiveness and efficiency of all building mechanical systems.
2. Inspect all caulking, weather stripping and other building sealants for flaws at doors and windows.
3. Close blinds or shades during periods of extremely cold or hot weather.
4. Review temperature settings of all thermostats and lower them based on function and learning efficiency.
5. Establish lighting levels which will support specific tasks.
6. Reduce illumination in auditorium, cafeteria, gym and all well-traveled hallways.
7. Adjust energy control systems for appropriate nighttime and weekend setback.

8. Keep all outside air dampers closed when the building is unoccupied.

9. Cut back percentage of outside air in ventilating system to code specifications.

10. Re-evaluate building requirements for morning warm-up.

11. Set temperature on water heaters for kitchen and washroom use to lower levels.

12. Schedule major portion of custodial activities for daylight operation.

Conclusions

Because today's schools consume large amounts of energy, and consequently pay high energy bills, the term "energy crisis" is no exaggeration to describe the situation currently confronting principals and teachers. Schools everywhere are under pressure to use less electricity, natural gas and heating oil. And schools should indeed be in the vanguard of efforts to reduce the nation's energy consumption. Apart from being helpful to the rest of society, a school which saves energy also saves money.

While energy conservation techniques may not be the total solution to the energy crisis, they are certainly part of the answer, and they are a large part of the answer to the energy cost crisis. Monitoring energy use and curbing energy waste can make enormous differences in money and energy consumption.

Schools can achieve significant savings in a surprising number of ways. Some of these methods have to do with inspecting and upgrading facilities regularly, and some with setting and servicing equipment properly. But others depend on changing the wasteful habits that are the products of a time when both energy and money were more plentiful. Principals, therefore, must take the lead both by directing and participating in serious energy conservation strategies.